ART. XXIX.—*A Treatise on the Function of Digestion; its Disorders, and their Treatment.* By F. W. PAVY, M. D., F. R. S., F. R. C. P., Senior Assistant Physician to, and Lecturer on Physiology at, Guy's Hospital. From the Second London Edition. 8vo. pp. 246. Philadelphia: Henry C. Lea, 1869.

THIS is a simple reproduction of the first edition of the work. It had been the author's intention to add an article upon *Food*, but finding the subject greatly extended by recent observations, he concluded to issue his remarks upon it in a separate volume, in which we are pleased to learn he proposes "to treat the matter in detail from both a theoretical and practical point of view." The book before us, as contrasted with the elaborate works of Budd, Handfield Jones, Chambers, Brinton, Habershon, Fox, and other investigators, is exceedingly elementary and limited. As the title indicates, no direct reference is made to special diseases of the digestive organs, and questions of diagnosis are therefore entirely passed by. The only exception is one of a general character, namely, the quotation of the peculiarities of cerebral vomiting as described by Romberg (page 116). We think this absence of definiteness and specific allusion a decided defect. The chapter upon *Vomiting*, for example, could be made much more instructive and yet not lose its character as a discussion of disturbed *function* only, by a condensed statement of the modifications of emesis (as to time, matter vomited, &c.) associated with different morbid conditions. A similar remark is even more applicable to the section on *Pain*. Descriptions of Pathological Anatomy are, no less than questions of diagnosis, excluded by the author's plan; and the only clinical illustrations presented are incidentally incorporated into the text. The greater portion of the work consists of a *résumé* of our knowledge of the anatomy and physiology of digestion, written in a very clear and pleasing manner, convenient for reference. The order pursued in the discussion is the natural order of the process from "*prehension and ingestion*" to "*defecation*." The disorders of function are treated of alternately with the normal conditions, and the therapeutic suggestions are instructive and plain. A final chapter is added on "Artificial digestion as a means of dissolving meat for producing an article of nourishment for the invalid." Dr. Pavy thinks that in the beef-tea, broths, and the extracts of meat prepared in the ordinary way, we have physiologically a very imperfect representation of an article of nourishment. "Just those very principles of the meat, viz., fibrin and albumen, which constitute its special blood- and tissue-forming elements, and give to it its nutritive value are left behind as insoluble products." In the process adopted by the author, a liquid is prepared containing the organic digestive principle with the apppropriate quantity of hydrochloric acid. This is neutralized with carbonate of soda after it has served its purpose, common salt resulting. About four hours is the time required, under the most suitable conditions, for solution to be effected. Filtration leaves a residue of a greasy nature, amounting to only about one-tenth in weight of the original quantity of lean meat. The filtrate reduced to the consistence of an ordinary extract, equals about a third of the weight of the flesh employed, and is in such a form as to be ready at once for absorption. The difficulties to be overcome have been a somewhat glue-like nature and a bitter taste, and the cause of the latter has not as yet been clearly made out. Dr. Pavy acknowledges the receipt of Dr. Marcet's pamphlet "On a new process for preparing meat for weak stomachs," and makes the following comment: "I here learn that the same idea has been passing through Dr. Marcet's mind as through my own; but whilst I have been looking to the production of a material for use in a state ready prepared, Dr. Marcet recommends that the process of preparation should be carried on in the patient's house, as the article is wanted, just as is ordinarily done in the case of beef-tea. For my own part I feel that such precision is required in the method of procedure as to render it hardly to be expected that the process will be found to be susceptible of being successfully carried out in the hands of the public." (page 245.) In this connection we are glad to note the author's reference to the inefficiency of many of the preparations of pepsin commonly sold, and his description of a simple plan of dissecting, drying, and powdering the gastric mucous membrane of the hog. The method is similar to that recommended by Dr. Beale. (*Kidney Diseases*, 3d ed. Philadelphia, 1869, p. 86.)

We find but a few points in the physiological portion of the volume requiring comment in this notice. At the bottom of page 69 Dr. Pavy says, "I have also found the acidulated infusion of the mucous membrane of stomachs taken from the post-mortem room of Guy's Hospital, and derived from persons who had died from protracted disease (typhoid fever, phthisis, lardaceous disease, heart disease with typhoid symptoms, &c.), possessed of energetic digestive properties." This, with the context, leaves us to infer that the digestive power in these cases was not materially impaired. We trust that the author will in a subsequent edition so modify the statement as to present some of the very instructive results reached by the elaborate and faithful investigations of Dr. Fenwick. (*The Morbid States of the Stomach and Duodenum*. London, 1868; see Review of, in the No. of this Journal for January, 1869, p. 162.) That author found that in typhoid fever the change in the gastric mucous membrane was in some sense atrophic, since in four cases the membrane had an average weight of only 580 grains, to be contrasted with the average of 1035 grains in seventeen patients who had died of other complaints (excluding cancer). The functional activity was correspondingly impaired, the average loss of weight in albumen subjected to the prepared digestive fluids being one grain; to be contrasted with the average nearer health, four grains. In cases of "venous heart" the conditions observed were even more striking. The whole membrane of the stomach was increased in weight one-fifth (from chronic congestion and hyperplasia), and its digestive efficiency impaired more than one-fourth.

After alluding to the important influence of temperature upon gastric digestion, the normal and requisite degree being from 99 to 102 in a state of repose, the author makes this timely attack upon the custom, more common in this country than in his own, of eating "iced-puddings and ices" at dessert. "From well-ascertained facts it may be positively asserted that lowering the temperature of the interior of the stomach whilst digestion is going on cannot fail to interfere with, and retard the completion of the process." Drinking copiously of cold fluid must also exert the same effect as partaking of ices. Upon one occasion the temperature of Alexis St. Martin's stomach was immediately reduced from 99½° to 70° by f℥iv of water at 55°, and not until after *half an hour* had elapsed had it risen again to 99°.

An interesting portion of the volume relates to the "escape of the stomach from self-digestion." The author's careful experiments and ingenious suggestions upon this subject have been before the profession since 1863. (See his paper in *Philosophical Transactions*, London, 1863.) They have been fully explained and reviewed elsewhere. (*Physiology of Man*; Flint. New York, 1867, vol. i. p. 278. *Outlines of Physiology*; Marshall. Philadelphia, 1868, p. 550.) He has certainly succeeded in disproving the "vitality" theory of Hunter, and the "epithelium and mucus" assumption of Claude Bernard. His own reference of the immunity of the stomach from self-digestion, to the protecting influence of the blood in the capillaries, which preserves the alkalinity of the tissues so long as the circulation continues, is founded on many experiments and plausibly maintained. As observed by Flint, however (op. cit., p. 280), this will not explain the escape of the intestinal coats during digestion, for the active fluids in this portion are themselves alkaline: and our author is, himself, one of those who believe with Corvisart, that nitrogenized tissues are digested by the intestinal juice, particularly by the pancreatic element (p. 191). It is but just to add that Dr. Pavy is not wedded to any exclusive theory, but declares the question still an open one.

Dr. Pavy believes that much of the "resinous" portion of the bile is reabsorbed during its passage through the intestine and utilized in the blood: he does not recognize its decomposition in the alimentary canal. In this he appears to agree with Frerichs and Staedeler. After the publication of the observations of Bidder and Schmidt upon the function of the bile in promoting the absorption of fats, and the opinion of Dr. Fenwick that this secretion is the main agent in the process, we cannot but regard the statement of the subject here made, as more decided than just. It is asserted that the co-operation of the bile with the pancreatic juice is limited to acid fats and is not absolutely needed.

Our author's well-known view that sugar is formed in the liver only after death is reaffirmed at length in the second edition of his work on Diabetes (London, 1869, see notice of, in No. of this Journal for April, 1869, p. 501), but from the nature of the case receives no allusion in the present volume.

The book is printed upon very good paper, with large clear type, and generous margins. We hope it will have the large circulation which it merits.

E. R.

Art. XXX.—*The Antiseptic Method.*

1. *On the Antiseptic Treatment of Wounds.* By William MacCormac, M.A., M.D., etc. etc. Dublin: John Falconer, 1869. 8vo. pp. 13.
2. *Case of Comminuted and Secondarily Compound Fracture of the Femur, extending into the Knee-joint: Treatment by Carbolic Acid.* By Arthur E. Durham. (Trans. Clinical Society, London, Vol. I. pp. 134–138.)
3. *On the Treatment of Wounds by the Application of Carbolic Acid, on Lister's Method.* By T. Holmes and W. B. Holdernesse. (St. George's Hospital Reports, Vol. III. pp. 241–248.)

1. The first paper, the title of which we have given above, is a reprint from the *Dublin Quarterly Journal of Medical Science* for February of the present year. Dr. MacCormac here reports eight cases in which he has used carbolic acid, viz., one of severe compound fracture of the ulna (from the premature explosion of a blast), three of severe compound fracture of the leg, one of compound fracture involving the elbow-joint, one of compound fracture of the patella, widely opening the knee-joint, one of compound dislocation of the carpal and wrist-joints, and one of amputation of the thigh for a cartilaginous tumour of the tibia. All of these cases recovered rapidly; more rapidly than there was any reason to suppose they would have done under ordinary modes of treatment. The following are Dr. MacCormac's conclusions as to the surgical uses of carbolized dressings:—

"First, that by their means, those conditions which promote the formation of pus, are sometimes wholly prevented, at other times greatly diminished in power, and that when pus is formed it proves quite innocuous, not prone to decomposition, and not injuring the wounded surface with which it is in contact. Secondly, I think the amount of pus is diminished when suppuration does occur. Thirdly, I have been much struck by the absence of those results of serious injuries, so apt to ensue both in the neighbourhood of the wounded parts, and constitutionally. I have observed over and over again the almost total absence of pain, inflammatory swelling, and surgical fever, where such might otherwise have been expected to occur. In extensive injuries, involving the deeper seated parts, it has appeared to me, carbolized dressing being resorted to, that those structures heal more readily, and that the wound soon becomes merely superficial, a granulating surface closing in and protecting the tissues beneath. . . Fourthly, I am disposed to believe that pyæmia will become comparatively of rare occurrence, but to establish this as a certain fact will require a very long series of observations."

2. In Mr. Durham's case, which was one of great severity, a most satisfactory cure was obtained, and certainly seems in great measure to have been due to the particular dressing employed (carbolic acid and glycerine, one part to three). Mr. Durham, in his remarks, directs attention to the following points: "In spite of the extent and severity of the injury, there was from first to last no constitutional disturbance worth mention; there was no exhausting suppuration; the discharge from the granulating surfaces was very slight, and abso-